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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,339	08/29/2001	Frank Muller-Rinke	1245-01	5922

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IP Department
Schnader Harrison Segal & Lewis
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Philadelphia, PA 19103

EXAMINER

CREPEAU, JONATHAN

ART UNIT PAPER NUMBER

1746

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,339

Applicant(s)

MULLER-RINKE, FRANK

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/29/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 899801.

Regarding claim 8, the reference is directed to a lead acid battery having a container, a positive electrode, a negative electrode, and an electrolyte (see paragraphs 2, 3, and 6). The battery comprises separators (20) having a plurality of substantially parallel main ribs (24) arranged at regular intervals on the outside surface thereof (see Figure 1). The outermost main ribs (corresponding to the claimed “additional ribs”) are arranged on the base sheet and contact the lateral edge portions of the positive electrode plates (38) (see paragraph 8; Figure 3). A plurality of reinforcing ribs (26A, B) are also located on the base sheet in the area of the lateral edge portions of the positive electrode (see Fig. 1). The reinforcing ribs are substantially parallel to each other and have a lower height than the main ribs and the additional ribs (see Fig. 4).

Regarding claim 9, the additional ribs are arranged symmetrically with respect to the main ribs (see Figure 1). Regarding claim 10, all of the ribs are integral with the separator base sheet (see Fig. 1). Regarding claim 11, the positive electrode comprises an expanded metal grid and the lateral edge portions thereof have open cut edges (see paragraph 3).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 899801.

The reference is applied to claims 8-11 for the reasons stated above. Further, with regard to claim 12, the reference teaches that prior art separators have thicknesses of between 0.006-0.015 inches (0.15-0.38 mm) (see paragraph 2). With regard to claim 14, the reference teaches that the reinforcing ribs have a radius (i.e., height) of 0.008-0.012 inches (0.203-0.305 mm) (see paragraph 10).

While the reference does not expressly teach the exact height ranges recited in claim 12-14, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of EP '801 would be sufficient to render the claimed ranges obvious to a skilled artisan. Regarding the thickness of the base sheet of EP '801, the artisan would be motivated to use the prior art thickness (0.15-0.38 mm) disclosed in paragraph 2. This range encompasses the claimed range of 0.15-0.25 mm, thereby rendering the range obvious. Regarding the height of the reinforcing ribs, the reference suggests a low value of 0.203 mm, which would render obvious the claimed range of "approximately 0.1-0.2 mm." Regarding the claimed height of the main and additional ribs (0.45-1.75 mm), the artisan would

be motivated use a value within the range because these ribs must be taller than the reinforcing ribs. Accordingly, each of the ranges recited in claims 12-14 would be rendered obvious by the disclosure of EP '801.

5. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19804423 in view of EP 899801.

Regarding claim 8, DE '423 is directed to a lead acid battery having a container, a positive electrode, a negative electrode, and an electrolyte (see abstract; first page of translation). Regarding claims 1 and 8, the battery comprises separators having a plurality of main ribs arranged at regular intervals on the outside (top) surface thereof (see Figure 3). The outermost main ribs (corresponding to the claimed "additional ribs") are located in the vicinity of the edge of the separator. A negative electrode (4) is positioned on the opposite side of the separator (see Figure 3; page 3 of the translation). Regarding claims 2 and 9, the additional ribs are arranged symmetrically with respect to the main ribs (see Figure 3). Regarding claims 3 and 10, all the ribs are integral with the separator base sheet (see Fig. 2).

DE '423 does not expressly teach that the separator comprises a plurality of shorter reinforcing ribs in the area of the lateral edge portions, as recited in claims 1 and 8, or that the additional ribs are located "in the region of" the reinforcing ribs, as recited in claim 1. The reference additionally does not expressly teach that the positive electrode comprises an expanded

metal grid having lateral edge portions having open cut edges, as recited in claims 4 and 11, or the heights of the main, additional, and reinforcing ribs, as recited in claims 5-7 and 12-14.

As noted above, EP '801 is directed to a lead-acid battery comprising a separator that comprises a plurality of small reinforcing ribs on the edges thereof.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use small reinforcing ribs in an area surrounding the additional ribs of the separator of DE '423. In paragraph 4, EP '801 teaches that "the closely spaced ribs and concave furrows therebetween provide significant resistance to gridwire puncture." Thus, the artisan would be motivated to incorporate the reinforcing ribs of EP '801 in an edge region of the separator of DE '423, i.e., in a region surrounding the "additional" ribs, to reduce puncturing of the gridwire of the positive electrode. It should be noted that although DE '423 does not expressly teach electrode grids, such grids are conventional in lead-acid batteries and could reasonably be expected to be present in the electrodes of DE '423. Additionally, such grids would have "open cut edges," as taught in paragraph 3 of EP '801.

Regarding the rib height ranges recited in claims 5-7 and 12-14, the disclosure of EP '801 fairly suggests these ranges for the reasons set forth in section 4 above. Accordingly, these ranges would also be rendered obvious to the skilled artisan.

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Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.



Jonathan Crepeau
Patent Examiner
Art Unit 1746
February 8, 2004